ceived also a questionnaire asking for actual diseases and therapies. A blood sample was drawn for dosing serum cholesterol, HDL-cholesterol, triglycerides, and glucose by standard methods (CV less than 5%). Diabetes was a re-
ferred diagnosis of diabetes or taking drugs for diabetes or glycerina > 140 mg/100 ml. Ninety two males (6.9%) and 134 females (12.9%) had gallstones or were operated on for gallstones; 112 males (7.8%) and 65 females (6.2%) had diabetes. In 1992-93, 1982 of the subjects without gallstones (87.7% response) agreed to be reexamined, again by ultrasound. One hundred and four subjects, 55 males and 49 females, had developed gallstones, an inci-
dence rate of 7.9 per 1000 person-years (7.1% in males and 9.1% in females). Diabetes at the prevalence study was associated with incident gallstones: odds ratio (OR) 2.1 (95% CI 1.8-5.5). The association diabetes-gallstones per-
sisted also after controlling for age, sex, weight, and height, and triglycerides by logistic regression: OR = 2 (95% CI 1.1-3.7). Age, BMI, and HDL-cholesterol (inverse relationship) were also independent risk factors of gallstones.

The findings of this study show that diabetes is associated with incident gallstones.

1326 | Improved Efficacy of Electrohydraulic Lithotripter by the Use of Conducting Water

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Extracorporeal lithotripsy is now scarcely recommended for the treatment of gallbladder lithiasis. One reason for this defavour is the inability of shock waves to satisfactorily fragment the biliary stones. We tested a new electro-
hydraulic generator in which the electric discharge is produced in conduct-
ing water (CW) which allows the shock wave formation to be controlled: The pressure at the focal point is stable and always maximal and the focal point is reduced in size. This generator theoretically combines the advantages of electro-
hydraulic (power) and piezoelectric (precision) lithotriptors. In vitro study: 30 pairs of stones were used (cholesterol: 25, bilirubin: 3, mixed: 2) (diameter: 7-15 mm, mean: 10.5). Stones from the same pair were obtained from the same gallbladder and looked identical (diameter, shape, components, weight). The first stone of a pair was fragmented using an electrohydraulic lithotripter (Technomed Diatron) with usual deionized water and the second using the same generator with CW. Fragmentation conditions were identical (stone at the focal point in a container). The number of shock waves to obtain fragments with a diameter less than:

- 5 mm was 168 ± 48 with CW and 1150 ± 188 without (p < 0.05)
- 3 mm was 313 ± 59 with CW and 1850 ± 193 without (p < 0.05)

Clinical study: 17 patients with a unique stone less than 20 mm in diam-
eter (moy: 13 mm) were treated using CW. In one session (moy: 1073 shock waves), 15 patients (88%) had fragments less than 5 mm in diameter. This re-
sult is better than the previous result (49%) obtained with the same generator but with deionized water (moy: 2050 shock waves) (Gastroenterol 1990).

Conclusion: Use of conducting water instead of deionized water dramati-
cally improves the in vitro efficacy of an electrohydraulic lithotripter. First clinical data confirm these results.

1327 | HPLC Determination of D-Glucaric Acid in Common Duct Bile of Patients Investigated by ERC

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Background: Enzymatic deconjugation of conjugated bilirubinate has been suggested to be of importance in the pathogenesis of gallstones. p-
-glucuronidase is normally (human) and pathologically (bacterial) occurring in bile. This enzyme is susceptible to inhibition by a normal constituent of bile: D-glucaric acid (DGA) which might contribute to bilirubinate deglucuronida-
tion. The aim of this study was to establish a method for quantification of biliary DGA.

Material and Methods: Bile was aspirated during ERC from 42 patients investigated for suspected biliary disease. 200 μl of the bile was freeze-dried and stored at −20°C until analysed. The sample was diluted in 1 ml mobile phase and filtered to remove proteins and large molecules. 20 μl of the filtrate was injected on an Aminex HPX-87H column kept at 30°C. The mobile phase was sulphuric acid 0.009 mol/l and the flow rate 0.6 ml/min. Data from UV-detection at 210 nm was acquired and chromatograms integrated on a PC. Spiking with known concentrations of DGA and glucuronidase activity in bile was performed.

Results: Recovery was 95 ± 9.5% (mean, SE), n = 4. Mean DGA in 42 bile samples was 82 μmol/l, range 12-255. No correlation was found to bilirubi-

1328 | Asymptomatic Gallstones in the Elderly: Preliminary Data of a Multicenter Prospective Study

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An increased incidence of gallstone disease in the elderly as compared to young adults has been reported in the literature. While in young adults the asymptomatic gallstone disease seems to be benign and surgical treatment is contraindicated, in the elderly the natural history is not known. Some authors suggest a more aggressive approach in these subjects since the mortality for complications and the operatory risk seem to be higher as compared to the general population, but no prospective studies are reported to support such a hypothesis.

The aim of this study was to evaluate the natural history of the asymp-
tomatic gallstones in the elderly. We enrolled 167 subjects aged more than 65 years (males 51, females 116, mean age 76, range 65-88) with asymp-
tomatic gallstones, diagnosed by ultrasound in a multicenter prospective study. At the admission the following data were recorded: body weight, alco-
hol intake, coffee and cigarettes consumption, number of pregnancies, use of oestroprogenic drugs, family history of gallstones and diabetes, number and diameter of the stones, routine blood tests. All subjects were followed up every six months by means of clinical and biochemical evaluation.

126/167 patients had a six months follow-up: 6/126 (4.7%) died for dis-

1329 | The Prevalence of Gallstone Disease in Old Aged Institutionalized Subjects

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Ultrasound data on gallstone disease prevalence in old aged subjects has been published from several countries but not from Romania. The aim of this study was to determine the prevalence of both symptomatic and silent gallstone in the old institutionalized persons.

All residents from two residential homes in iasi (North-East of Romania) aged over 65 years were invited to participate in the study and each subject underwent real-time ultrasonography after having a complete history and physical examination. Of 272 subjects invited, 247 attended: 106 men and 141 women, managed 74.6 years (range: 65-94 years).

Seventeen (16%) of 106 men and 46 (31%) of 141 women had gallstone disease, including those who had previously cholecystectomy. The preva-

1330 | Antegrade Enema. The Useful Appendix

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Antegrade colonic irrigation is recognized as a useful alternative for pre-
operative and on table colonic preparation. The paediatric surgeon Mitro-
fanoff introduced some years ago the use of appendix for making a conti-
nent stoma. Malone adapted the Mitrofanoff principle. The appendix has since that time been used in our paediatric unit with promising results for antegrade irrigation of colon in children with chronic intractable faecal in-
continence, as well as a mean to control soiling and faecal leakage following different anorectal anomalies. We describe how the technique has now also been adapted to use in an adult in our department.

A 21 years old woman had been operated on as a newborn with a "pull through" operation for a high anal malformation. A persistent faecal inconti-

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creating a non-refluxing catheterizable channel forming a continent stoma and providing access for an antegrade enema. Although the observation time so far is short the result is promising. The stoma is continent and the antegrade irrigation is easily performed with 1000-1500 ml tap water. The soiling is reduced, probably due to a more effective irrigation. Most of all, the patient finds this procedure much more satisfactory than the retrograde irrigation.

1331 Laparostomy and Lumbostomy in the Treatment of Severe Intra-Abdominal and Retroperitoneal Infections
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The purpose of this study is to present our experience with laparo- and lumbostomy as the treatment in these cases. We have performed laparostomy and/or lumbostomy in 36 patients since September 1991 till September 1993. There were 16 females and 20 males. The mean age was 53 years.

The primary disease was: pancreatic abscess, necrosis of the pancreas, perforation of the alimentary tract, liver abscesses, contaminated trauma, infection of the vascular prosthesis, contaminated kidney graft. We performed: blood tests, USG, CT in all patients. Most of the patients had one or more coexistent diseases. All the operations were operated on in general anaesthesia. The operation was: debridement and evacuation of the contaminated masses, lavage with antibiotic solution, creating laparostomy and/or lumbostomy, filling the wound with sterile gauze. The operation wound was sutured with guide sutures or a zipper. Antibiotic therapy was introduced according to the result of the antibiotic resistance tests. The first exchange of dressing gauze with local lavage was in the second postoperative day, next every 1–2 days depending on local status.

Fifteen patients died. All the 6 patients operated on because of infection of the vascular prosthesis died. The overall surveillance was 30% (21 out of 30 patients) after excluding patients with infection of the vascular graft. Main causes of deaths were complications of the primary disease. The mean hospital stay after operation was 57 days. The mean number of dressing exchange in general anaesthesia was 9 times. CT and USG were useful in predicting the anatomical topography of the infection.

Conclusion: Laparostomy is a useful, giving relatively low mortality rate, method of treatment of severe intra abdominal and retroperitoneal infections. It gives best results if the infection is demarcated and within the abdominal cavity. This procedure, however, is unsuited in the treatment of vascular prosthesis infection.

1332 A Prospective Comparative Study on Survival in Resectable Versus Irresectable Liver Metastasis From Colorectal Cancer
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Despite several reports on five year survival in 25-40% of patients undergoing radical liver resection for metastasis from colorectal cancer, uncertainty persists considering the true value of surgical treatment. Favourable results might be only marginal and due to patient selection rather than the therapeutic strategy.

Methods: To elucidate this question, we have compared survival in 45 patients undergoing radical liver resection with a control group of 45 irresectable patients. Only patients with neoplastic disease confined to the liver were included in the study. All 90 patients were laparatomized with the intention to perform radical liver resection. The 45 patients in the control group were irresectable due to the dissemination of neoplastic disease within the liver. Postoperative complications and survival have been recorded in both groups.

Results: 40 metacarcinose and 5 synchronous metastases were radically resected. 40 patients aged within the same decade and in the same general health condition with irresectable metacarcinose metastasis were included in the control group, together with 5 patients with irresectable synchronous metastasis. Survival after radical resection was 40 (±4)-months, versus 10 (±8) months in the control group. Mortality within 30 days postoperatively was 2 patients (4.4%) after radical surgery (myocardial infarction and liver insufficiency), versus 3 patients (6.6%) after explorative laparatomy (one myocardial infarction, one pneumonia, one lung embolus). Five year survival was 22% after radical liver resection, versus zero in the control group. Postoperative complications were observed in five patients (11%) after liver resection versus four (9%) in the control group.

Conclusion: Our patients did significantly better after radical surgery. No control patient was alive after 32 months, indicating a very low chance of long time survival without radical surgery. Postoperative mortality (within 30 days) was not different after explorative laparatomy and liver resection.

1333 Diagnosis and Treatment of Neuroumcruscular Colonic Abnormalities in Children
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Among colonic malformations which require an operative correction, only Hirschsprung's disease has been studied sufficiently. However, a cause of megacolonic cannot be traced in many cases, and this suffering is referred to as "chronic idiopathic constipation".

To elucidate a mechanism of this suffering development, we examined 476 children with unremitting chronic constipations using anorectal manometry (ARM), barium enema, radioopaque markers transit through GIT, biopsy. No one of the patients examined had neurologic, anatomic or causal medical reasons for the disease development. Hirschsprung's disease was also excluded. Radiographically, the left-sided megacolon was found out in all of the patients (colagenic stasis in 5, proctogenic stasis in the rest). ARM revealed rectoanal dyssynergia (RAD) in 42 of the children, myogenic anal achalasia (MAA) in 42. In the 5 patients with cologenic stasis we found non-specific hyperplasia, dysgenesis of the submucosal plexus was found out enzymohistochemically, which indicated the neuronal colonic dysplasia (NCD).

Partial myotomies of the internal sphincter ani were performed in 42 of the children with good and excellent results. Three children with MAA underwent colorectal resections using our original technique, and two patients had segmental colorectal resections with excellent results. The remaining patients were successfully treated medically.

It was concluded that chronic idiopathic constipation develops when either the outlet obstruction (RAD and/or MAA) or NCD is present. Surgical treatment has to be reserved for patients with neuroumcruscular abnormalities (NCD and/or MAA).

1334 Severe Pouchitis as a Complication of Ileal Pouch Anal Anastomosis; Short-Chain Fatty Acids as an Alternative for Treatment
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Restorative proctocolectomy with an ileal pouch anal anastomosis has become an established alternative to permanent ileostomy in patients with severe ulcerative colitis (UC) and familial polyposis coli. The functional results are generally good but pouchitis remains a significant and poorly understood complication. Pouchitis is found in 10–20% of the patients, which is mostly treated with standard therapy. In a few patients this therapy doesn't improve the pouchitis. The cause of the inflammation is unclear, but a relative deficiency of intraluminal short-chain fatty acids in the pouch has been suggested.

We present a case of a 48 years old woman who had undergone colectomy and mucosal proctectomy with an ileal S-pouch anastomosis for UC. Postoperatively the patient developed a pouchitis severe enough to require treatment. However the patient was unresponsive to standard treatment [oral sulfasalazine/5-aminosalicylic acid (5-ASA)/flose-dose prednisone; rectal 5-ASA+metronidazole; microenemas]. Because the condition didn't subside within 10 weeks we started treatment with short-chain fatty acid enemas. This enemas contained 100 mmol/L sodium butyrate (pH 7.0) made isotonic by addition of NaCl (40 mmol/L). Two enemas per day (volume, 100 mL) were instilled into the pouch, and the patient was to remain supine for 30 minutes thereafter. After 4 weeks of treatment the pouchitis was totally cured and after cessation of the therapy no recurrence of the pouchitis occurred.

Pouchitis is characterized by decreased fecal concentration and production of short-chain fatty acids caused by low pouch concentrations of fermentable saccharides. We suggested that short-chain fatty acids (butyrate enemas) are an alternative for treatment in patients with therapy-resistant pouchitis.

1335 Four Surgical Procedures in Treating Cricatrical Pyloric Obstruction: Seventeen Years Experience
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This study is a retrospective evaluation for 100 consecutive patients with cicatrical pyloric stenosis secondary to chronic duodenal ulcer who were managed by different surgical procedures in the period from April 1976 to April 1993. The selection of the type of operation was dependant mainly on the size, motility and evacuation rate of the stomach as well as the exact site of cicatrex. Truncal vagotomy with gastrojejunostomy was done for 60 cases, highly selective vagotomy with gastro-jejunostomy for 28 cases, highly selective vagotomy with duodenoplasty for 12 cases, and truncal vagotomy with antrectomy for 10 cases. Evaluation was carried out for all patients by thorough clinical examination, laboratory and metabolic investigations, bar-
Introduction: There is considerable controversy regarding the best treatment of iliofemoral thrombosis. Factors such as anticoagulation therapy and dissection were contraindicated in pregnancy, so heparin application is the method of choice for conservative treatment. It considerably reduces the risk of pulmonary embolism and further thrombosis, but the incidence of post-thrombotic syndrome remains at 20–50%.

The enlarged uterus is the main reason of thrombosis, surgical thrombectomy with construction of a temporary arterio-venous fistula improves the therapeutic results by increasing blood flow in the pelvic veins.

Patients and Methods: We report our experiences in surgical treatment of 34 cases of pelvic vein thrombosis in pregnancy and 3 cases of isolated descending iliofemoral vein thrombosis of another aetiology that were performed at the Department of Vascular Surgery, Karl-Franzens University Graz in a period of 8 years. The patients were aged 26.5 years, thrombosis occurred between the 20th and 36th week of pregnancy. An antithrombin III syndrome was seen in one case, in a further patient an iliac spur was seen in phlebography.

Results: 5 patients with a-fistula developed rethrombosis, in 2 cases re-operation was successful, in 3 patients thrombosis persisted. Asymptomatic, late rethrombosis occurred in 2 patients who were seen in follow up. The re-occlusion rate is 13.5%.

The complication of a mild, non-life threatening pulmonary embolism was observed on the first postoperative day in 1 patient.

Conclusion: Surgical thrombectomy with temporary a-fistula has proved useful in selected patients with a high risk of recurrent thrombosis.

Multiple Peritoneal Starch-Powder Granulomas Resembling Carcinomatosis

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The occurrence of glove powder granulomas in peritoneal noduli presumed to represent carcinomatosis have not gained widespread attention. During the past four years we have registered ten cases of multiple glove powder granulomas, believed by the surgeon to represent tumor dissemination.

The patients were referred with abdominal cancer disease and all patients had undergone at least one previous laparotomy at a hospital using powdered gloves during the past few years. The unsuspected peroperative finding of multiple peritoneal noduli was presumed to represent carcinomatosis and led the surgeon to cancel the operation in one case, whereas in six other multiple peroperative frozen sections made the surgeon change strategy and carry out the planned procedure. Three patients developed starch powder peritonitis postoperatively and one of them had a fatal lung embolia. In two patients the starch powder reaction was associated with development of true carcinomatosis and one patient later developed recurrence of his liver metastases. After a mean follow-up of 17 months, six patients are still alive with no sign of disseminated cancer disease.

Based on this information we recommend routine pathological documentation of all peroperatively detected tumor dissemination, and if the results will influence the surgical procedure, frozen sections should always be carried out, since even experienced surgeons cannot with certainty differentiate between cancer nodules and starch powder granulomas. To minimize the risk of powder-induced complications, the use of particle-free gloves is strongly recommended.

Results of Total Gastrectomy with R2 Lymph Node Dissection for Gastric Cancer from a Single Center in Spain


We present a retrospective study analyzing the postoperative course, surgical complications and histopathologic findings after total gastrectomy with R2 lymph node dissection for adenocarcinoma. Thirty-nine patients were included in the study.

The mean duration of operation was 193 mins. and the average hospital stay was 16.5 days. Surgical drains were maintained during 7–9 days with a mean total drainage output of 1447 ml. There were no operative mortalities. Complications were detected in 36% of patients, the most frequent being abdominal abscesses (13%) followed by pancreatic fistulas (7.6%) and jejunal stump leaks (2.5%). The most frequent medical complication was sepsis due to central venous catheter infection (13%) followed by pneumonia (7%).

The mean number of identified lymph nodes was 33/patient, most of them being from the N1 or peri gastric area (26.8%). From levels 7–11 (JRSCG classification) a mean of 6.3 nodes/patient was obtained. There was no significant difference in the number of identified lymph n. in relation with tumor stage. Twenty-one patients (53%) had positive nodes, five of them having involvement of both the N1 and N2 echelon of nodes while one had N2 positive with N1 negative nodes.

We conclude that total gastrectomy with R2 lymph node dissection has an acceptable morbidity and mortality, and allows a more accurate tumor staging due to the greater number of lymph nodes obtained. N2 nodes could be positive in resectable tumor including early gastric cancer.

Does Preoperative Radiation Therapy Increase Or Favor Complications in the Treatment of Rectal Cancer?


Due to the high incidence of loco-regional failure in rectal cancer, new therapeutic alternatives have been developed. Among them, preoperative radiotherapy has shown outstanding improvements.

The aim of this study was to assess the effect of preoperative radiation therapy at the moment of surgery, and to determine its influence in developing perioperative complications.

Two treatment groups were defined: group I patients who underwent surgery without preoperative radiotherapy (n = 76) and group II, patients who were treated with preoperative radiotherapy (n = 33), with 45 Gy, and surgery. Patients included in this last group also received intraoperative radiotherapy (ICRT) at a dose of 15 Gy. Distance by endoscopy from the anal verge was 12.3 cm in group I, and 9 cm in group II (p < 0.05). Regarding to the type of surgery, there was a higher percentage of sphincter-saving procedures in group II (57.6% vs. 47.4%). Clinical tumor staging by CT scan showed 24.3% of stage B cases and 75.7% of stage C in group II, versus 48.7% and 51.3%, respectively, in the group I.

The incidence of early surgical complications was similar in the two groups, 22.4% in group I and 21.2% in group II. Three cases of anastomotic leakage were found, 1 in group II and 2 in group I, one of which required surgery. In spite of more locally advanced and lower tumors, and a larger number of sphincter-saving procedures performed in group II, preoperative radiation therapy has not increased morbidity in these patients.

The Influence of Hemodilution of Heating of Large Intestine Amalagnation in Our Own Material

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The aim of this work was to assess the influence of hemodilution performed in the early stage after operation on healing of large intestine. The material contains 310 patients with the amalagnation of large intestine performed in our Clinic. 286 of them (92.2%) were operated because of malignant cancer of large intestine and 24 (7.74%) because of other reasons divided into groups according to different values of peripheral blood measured in the first day after surgery. The clinical symptoms of amalagnation leak were observed in 24 (7.74%) patients and the mortality rate was 3.54%. The smallest number of large intestine amalagnation leaks was observed in patients with blood dilution of haematocrit values from 26 to 30% and blood lack (defect?) that did not exceed 1000 ml. Conclusion: Hemodilution in the early stage after surgery positively influences on healing of large intestine amalagnation.

Indications for Choledochotomy and Methods for its Completion


The aims of the study are: 1/follow the indications for choledochotomy
and different methods for its completion; 2/To analyse the results, complications and postoperative morbidity and mortality rate.

497 pts with performed cholecdochotherapy for different benign diseases of biliary tract were reviewed. Indications for cholecdochotherapy were: Obstructive jaundice; Dilated CBD; Multiple and small stones in the gallbladder and dilated cystic duct; Cholelithiasis and Hepatolithiasis; Stenosing papillitis; Cholangitis; Gallstone pancreatitis; Complicated hepatic hydatid disease, etc.

The choice of the alternative method for completion of cholecdochotherapy was strictly individualized, depending on the character of hepato-biliary pathology and from the exact intraoperative diagnosis (Cholangiography, US, Cholecodochoscopy). In 309 pts External drainage was performed after cholecdochotherapy. T-tube drainage – in 238 pts (47.88%); T-tube drainage plus dilatatio p. Vateri – in 68 pts (13.68%) and Transcystic drainage – in 3 pts. Bilio-digestive anastomosis were performed in 149 pts (most of all Cholecoduodenostomy – in 137 pts, 37.56%). Papillosphincteroplasty was performed in 3 pts (2 cases of internal drainage + Papillosphincteroplasty + Cholecoduodenostomy) – in 21 pts (4.22%).

Postoperative-mortality was 3.89% (predominantly in elder patients and those with serious concomitant diseases) and postoperative morbidity rate was 6.8%.

### 1342 Management of Traumatic Segmental Bile Duct Injuries

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No clear advices are expressed concerning the functional effect of ligating too large segments of the liver.

Patients, Methods, Results: From 1989 to 1991, 46 patients underwent surgical treatment because of blunt liver trauma. Out of 10 patients suffering from trauma grade 5, three had a concomitant rupture of the bile ducts to segments 5 and 6. Additionally, one patient suffered from a semicircular rupture of the biliary convergence, diagnosed and reconstructed during the first operation. After perihepatic packing for the management of initial hemorrhage, a further leakage concerning the segments 5 and 8 was found intraoperatively by cholangiography during the second look operation. Reconstructions were performed using a 7.0 resorbable suture. The integrity of the liver was assessed by normal liver function tests and liver scintigraphy (HIDA, colloid scan).

Conclusion: It is obvious that in all cases with ruptured bile ducts, consequently the more central segments 5 and 8 were affected. The mechanism of the deceleration type of liver injury based upon a fracture along the insertion of the right triangular ligament, which tears the plane between segments 5/8 and segments 6/7. The management of duct repair was facilitated both, by the large common segmental duct (5 and 8) and the accessibility based upon the laceration of the parenchyma. We suggest that the duct to be ligated is draining not more than one segment. The consecutive reconstructions in all our patients were performed to keep the functional capacity providing the remaining liver tissue to run the risk being reduced by atrophy of the excluded segments.

### 1343 Saline Enhanced MR Imaging in the Diagnosis of Perianal Fistulae

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The purpose of the present investigation was to evaluate conventional MRI and saline enhanced MRI in the diagnosis of perianal fistulae.

Material and methods. Fifteen MR investigations were performed in 12 consecutive patients with perianal fistula disease before and after instillation of 2–20 ml of saline through a thin catheter introduced into the external opening of the fistulae. All images were evaluated by two radiologists as part of the diagnostic work-up, and pre- and postinstillation images were reevaluated with regard to efficacy of the saline instillation by two radiologists separately.

Results: In seven patients the fistulae were located below the levator ani whereas five patients had suprarectal extension of the fistulae system. In eight of the 15 examinations a discontinuity of high signal intensity in the rectal wall indicated communication of the fistula to the ano-rectal lumen. Comparison between the pre- and postinstillation images gave the following results: 4 were excellent, both with and without saline instillation. After saline instillation six improved from poor to good and three from not evaluable to good or excellent. In two the image was unchanged fair and good respectively.

Conclusion. The results suggest that MRI is an excellent method for demonstration of perirectal and perianal fistulous tracts and fluid filled cavities. Saline enhanced MR fistulography improves the conspicuity and delineation of fistulous tracts and fluid cavities in patients with relatively little seclusion through the fistulae and in patients with complex fistulous systems.

### 1344 On Table Lavage and Primary Anastomosis After Colon Resection

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The aim of the present prospective study was to evaluate the results of on table lavage and primary anastomosis after colon resection.

Materials and methods. Twenty-nine patients were included. Twenty-three were operated for colorectal cancer, 3 for diverticulitis, 2 with reestablishing bowel continuity after Hartmann procedure and 1 patient was operated for colon bleeding. There were 26 left colectomies, 2 resections of the transverse colon and 1 right sided hemicolectomy.

Results: The procedure prolonged the operation time by 38 min. (median), range 16–80 min. There was no mortality. The rate of complications was 14%. None of the patients had clinical signs of anastomotic leakage.

Conclusion: Primary colonic anastomosis after on table lavage is a safe and reliable alternative to stage operations. It saves the patients the discomfort of a temporary stoma and possible morbidity by further operations.

### 1345 Management Strategy for Small Bowel Obstruction Using Radiopaque Markers


From 1990 we have used radiopaque markers (RM) for the diagnosis and management of small bowel obstruction (SBO) due to adhesion. One hundred and five patients were treated with a nasogastric tube followed by the oral administration of a capsule containing 20 RM (SITZMARKS") on admission.

The distribution of the markers was evaluated by X-P. On the abdominal X-P of supine position we defined a straight line connecting the right costophrenic angle and the left anterior superior iliac spine, which we called "CIS line". The abdomen was divided by CIS line an upper and lower abdominal segment. We calculated the number of markers in the upper abdominal segment at 6, 12, 24, and 48 hours after administration. The number of markers after 24 hours (NM24) was 2.9 ± 0.6(mean ± SE) in 61 patients who recovered within 7 days only by the use of nasogastric tube. On the other hand, in 44 patients who required more than one week for treatment, the NM24 was 16.6 ± 0.6 (p < 0.01). These 44 patients were treated by long intestinal decompression tube and total parenteral nutrition. Among them 30 patients were recovered by conservative treatment, 14 patients were undergone surgery.

Radiopaque markers is very useful to evaluate at the early time after admission whether additional treatment is necessary or not in cases of SBO.

This method is a new, very easy and noninvasive diagnostic approach for the patients with SBO.

### 1346 Complication Rates in Emergency Gastrointestinal Surgery

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Emergency gastrointestinal surgery has traditionally been associated with frequent postoperative problems. To assess the extent of this problem at our department, we retrospectively register of complication rate and other relevant parameters has been carried out since 1991. 2800 patients has been included with 3150 procedures performed. Median age at the time of admission was 58 years (range 15–92) and the male/female ratio was 1/1.

Of these procedures, 48% was performed on an emergency basis. The emergency complication rate was 16%, compared to 17% for patients with planned procedures. Median age for emergency patients was 51 years with a male/female ratio of 48:52. There was no significant difference between emergency and planned surgery in terms of postoperative mortality and reoperation rate.

For patients below 60 years of age, complication rates were lower in emergency surgery than in elective, whereas reoperation rates and postoperative mortality were quite evenly distributed. The main indications for emergency surgery in this group were appendicitis and other inflammatory processes. For patients over 60 years of age complications were more frequent in emergency cases, and reoperation rate and postoperative mortality slightly higher, though not significantly so. Even when corrected for ASA-classification, emergency procedures implied a higher postoperative risk in comparable age groups.

Having an operation performed on an emergency basis increases the risk of postoperative problems in the higher age groups, even when corrected for ASA-classification and diagnosis.
Different Anastomosis Techniques in Colorectal Surgery
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Clinical study was performed since 1st April 1990 till 10th January 1994. The goal of this study was to compare the perioperative data of three groups of patients with colorectal resection because of malignancy. The operator and the preoperative preparation were the same. Data of 92 patients (52 female and 40 male) were analysed. The patients were divided into three groups according to three types of anastomosis techniques. Group I contained 30 patients with "hand made" anastomosis (12 end to end; 6 end to side; 12 side to side). In Group II "end to end" anastomosis was made by EEA circular stapler (COMESA) in 27 patients. In Group III 35 "side to side" anastomoses were made by linear stapler (PLC-ETHICON or GIA-Autosuture C.). The groups were comparable. Distribution of sex, mean age and mean body weights were similar.

Only one patient of 92 died after the surgical procedure. It means 1% mortality rate. This case was in the Group II. Septic complication rate was also higher in the Group II compared to the other groups. The operative time and less septic complication rate are very important factors in the gastrointestinal surgery.

Protection Against Immune Complex-Induced Colitis in Rabbits by OR-1364
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OR-1364 (3-[3-cyanophenyl)methylene]-2,4-pentanedione) is a locally acting thiol modulating compound, which has been shown to markedly protect against experimental colitis mediated by acetic acid, hapten or free radicals. The aim of the present study was to test the effect of OR-1364 against immune complex-induced colitis in rabbits. Since interleukin-1 (IL-1) has been suggested to play an important role in the initiation of immune complex colitis, we assessed the effect of OR-1364 on IL-1β release from human mononuclear cells in vitro.

Methods: 4 ml of 1% formalin was instilled into the distal colonic site of NZW rabbits and two hours later immune complexes were injected intravenously. Only the Ho2381 and 3 mg/kg IL-1β (100 mg/kg) were administered intracolically 24 h and 1 h before, and 24 h and 4 h after formalin application. The animals were sacrificed at 72 hours and the colonic lesions were scored macroscopically and histologically. Leukotriene B4 (LTB4) and prostaglandin E2 (PGE2) release from the colon was determined by RIA. IL-1β production was determined in ELISA from culture media of lipopolysaccharide activated human mononuclear cells.

Results: OR-1364 inhibited dose-dependently the development of the colitis. The mean macroscopic score of the control group was 6.9 ± 0.6 and it was reduced to 2.3 ± 0.8 by 3 mg/kg of OR-1364. The histologic evaluation paralleled the macroscopic findings and a marked inhibition of neutrophil infiltration was observed. The release of LTB4 was reduced by OR-1364 up to 73% while the release of PGE2 was not affected. 5-ASA affected neither the colitis score nor the eosinoid release. OR-1364 decreased IL-1β production in vitro dose-dependently at the range of 2-8 μM.

Conclusion: Locally administered OR-1364 exerted a marked protection against immune complex mediated ulcerative colitis. In vitro OR-1364 inhibited IL-1β production in human mononuclear cells at low micromolar concentrations. Thus, the observed inhibition of neutrophil infiltration into the rabbit colon may be a consequence of decreased IL-1 release by mucosal cells.

Effect of Interleukin-8 on Leukocyte-Endothelial Cell Adhesion in a Model of Chronic Intestinal Inflammation
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Leukocyte endothelial cell adhesion (LECA) is affected by a variety of inflammatory mediators. Although one of them, interleukin-8 (IL-8), is known to stimulate neutrophil granulocytes in vitro there is little in vivo data to support this hypothesis. The objective of this study was to assess the role of IL-8 in mediating the LECA elicited in postcapillary venules during chronic intestinal inflammation in immune Davywe rats. Methods: Indomethacin (INDO) (7.5 mg/kg, s.c.) was injected 48 and 24 hrs. prior to the experiment. The mesenteric microcirculation was observed by intravital microscopy in animals treated with a monoclonal antibody (Mab) against IL-8 (DM/C7, 3 mg/kg i.v.) or a non-blocking control Mab. Leukocyte rolling velocity, the number of adherent and emigrated leukocytes, vessel diameter, and erythrocyte velocity were monitored on ~30 μm diameter postcapillary venules. Results: INDO treatment resulted in mucosal ulcerations, granulocyte infiltration, an increase in the number of adherent (5-fold) and emigrated (6-fold) leucocytes (187±70 to 346±65%, p<0.05) and reduced rolling velocity (80%) in leucocyte rolling velocity. While the non-binding Mab had no effect administration of Mab against IL-8 reduced the INDO-induced increase in leucocyte adherence and emigration by 60% each, while rolling velocity was increased to 37% as compared with controls. Granulocyte infiltration of the bowel wall was significantly reduced by 50% vs. the INDO-treated group. Conclusion: In chronic intestinal inflammation induced by INDO IL-8 is one of the mediators inducing leucocyte endothelial cell interaction – probably by activating adhesion molecules on granulocytes and/or the release of reactive oxygen metabolites.

In Vivo Quantification of Intracolonic Release of Interleukin-1β in Chronic Ulcerative Colitis
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Interleukin-1β (IL-1β) is a polypeptide cytokine with a well defined proinflammatory activity attributable to stimulation of eicosanoid generation, IL-8 production and immunocompetent cells. To investigate the role of IL-1β in chronic ulcerative colitis (CUC), we studied 26 patients (17 men and 9 women, range 18-71 years) with untreated CUC and 7 patients with irritable bowel syndrome (IBS) (2 men and 5 women, range 18-46 years) who served as disease controls. In 7 CUC patients the disease was inactive and in 19 was mild to moderately active according to clinical and colonoscopy criteria. 7 patients with active CUC were studied before and after 4 weeks on oral treatment with 5-ASA (1 g bid). Colonic perfusion was performed by a double lumen tube placed into the descending/sigmoid colon. An isotonic solution was continuously infused 50 cm from the anal verge at 5 ml/min, and recovered 30 cm distally by siphonage. After 30 min washout and 30 min equilibration periods, 10 min effluent collections were obtained for 40 min. Aspirates were analyzed for IL-1β by ELISA, polymorphonuclear elastase by IMAC and LTB4 by specific RIA. Results: None of the IBS patients and 5 out of 7 inactive CUC patients had undetectable IL-1β release. In active CUC, the release of IL-1β was found in 19/21 patients tested in 17/19 patients tested at 24-48 h. Inactive CUC and IBS, whereas elastase release was higher in inactive CUC than in IBS. 5/7 CUC patients improved after 5-ASA treatment. In the responder patients IL-1β became undetectable or declined.

Conclusions: active CUC is associated with enhanced IL-1β release into the colonic lumen whereas such release does not occur in remission. This finding supports the concept that CUC flare ups involve increased IL-1β production and suggest that IL-1β antagonist could be clinically useful.

Urinary Nitrite Dipstick: A Reliable Disease Activity Marker in Inflammatory Bowel Disease (IBD)

Nitric oxide (NO) is an endogenous mediator of smooth muscle relaxation. It is generated from L-Arginine by NO synthase. This enzyme can be induced by various cytokines and endotoxins. Hence in IBD, NO production is enhanced which may play a role in regulating vascular permeability and colonic smooth muscle tone. NO has a short half life and is metabolised to its stable end products, nitrate and nitrite which are excreted in urine. Nitrite dipstick is based on Griess’s test and is specific to nitrite. It’s sensitivity limit is 0.05 mg/100 ml and reveals the presence of nitrites by a pink to red discoloration of the test patch.

The aim of this study was to test the urine of IBD patients for nitrites and to correlate the results with the clinical and biochemical parameters of disease activity. We used the Nephur test+ Leuco dipstick for this study. 42 urine samples were tested randomly and were interpreted to be positive or negative. Urinary infection was ruled out when the sample was collected previously, before they were stored at -20°C. They were thawed to room temperature prior to the dipstick test. 18 samples were positive for nitrites and 24 were negative. Clinical disease activity index (Harvey Bradshaw), ESR and C-Reactive protein were compared between the nitrite positive and negative groups using the student t test. For all the three indices there was a significant difference between the two groups (P value < 0.01) which also correlated well with the patient’s relapses and remissions.

Our study shows that the nitrite dipstick is an inexpensive, rapid and reliable disease activity marker in IBD. We feel that a quantitative nitrite dipstick